

SEQUENCE LISTING

<110> Jahn, Margaret M.
Kang, Byoung-Cheol

<120> RECESSIVE PLANT VIRAL RESISTANCE RESULTS FROM MUTATIONS
IN TRANSLATION INITIATION FACTOR eIF4E

<130> 19603/4252

<140> 10/538, 434
<141> 2003-12-17

<150> 60/434, 220
<151> 2002-12-17

<150> PCT/US03/40184
<151> 2003-12-17

<160> 39

<170> PatentIn Ver. 2.1

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<211> 875
<212> DNA
<213> Capsicum annuum

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aggtgaaatt gttgaagaaa ctgatgatac gacgtcgat ttgagcaaag aaatagcaac 180
aaagcatcca ttagagcatt catggacttt ctggtttgc aatccagtgg cgaaatcgaa 240
acaagctgct tgggttagct cgcttcgcaa cgtctacact ttctccactg ttgaagattt 300
ttgggtgct tacaataata tccaccaccc aagcaagtta gttgtggag cagacttaca 360
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aatgatttga catcaattcg atcatgaaga tggaaatttg ggagcagtag ttagtgtcag 540
aggttaaggaa gaaaaaatat ctttggac caagaatgct gcaaatgaaa cggctcaggt 600
tagcatttgtt aagcaatgga agcagttct ggattacagc gacagtgttgc gcttcatatt 660
tcacgacat gcaaagagggc tcgacagaaa tgcaaagaat cgttacacag tataattttt 720
gatgcaatgt cgaaatataa gaaacacaat tcgtactgaa aagttgttagg cactagtta 780
gtttctcata cgataaaagct tctgggttgc gtaccttgc tattgggttt tgcactttct 840
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<210> 2
<211> 228

<212> PRT

<213> Capsicum annuum

<400> 2

Met Ala Thr Ala Glu Met Glu Lys Thr Thr Thr Phe Asp Glu Ala Glu
1 5 10 15

Lys Val Lys Leu Asn Ala Asn Glu Ala Asp Asp Glu Val Glu Glu Gly
20 25 30

Glu Ile Val Glu Glu Thr Asp Asp Thr Thr Ser Tyr Leu Ser Lys Glu
35 40 45

Ile Ala Thr Lys His Pro Leu Glu His Ser Trp Thr Phe Trp Phe Asp
50 55 60

Asn Pro Val Ala Lys Ser Lys Gln Ala Ala Trp Gly Ser Ser Leu Arg
65 70 75 80

Asn Val Tyr Thr Phe Ser Thr Val Glu Asp Phe Trp Gly Ala Tyr Asn
85 90 95

Asn Ile His His Pro Ser Lys Leu Val Val Gly Ala Asp Leu His Cys
100 105 110

Phe Lys His Lys Ile Glu Pro Lys Trp Glu Asp Pro Val Cys Ala Asn
115 120 125

Gly Gly Thr Trp Lys Met Ser Phe Ser Lys Gly Lys Ser Asp Thr Ser
130 135 140

Trp Leu Tyr Thr Leu Leu Ala Met Ile Gly His Gln Phe Asp His Glu
145 150 155 160

Asp Glu Ile Cys Gly Ala Val Val Ser Val Arg Gly Lys Gly Glu Lys
165 170 175

Ile Ser Leu Trp Thr Lys Asn Ala Ala Asn Glu Thr Ala Gln Val Ser
180 185 190

Ile Gly Lys Gln Trp Lys Gln Phe Leu Asp Tyr Ser Asp Ser Val Gly
195 200 205

Phe Ile Phe His Asp Asp Ala Lys Arg Leu Asp Arg Asn Ala Lys Asn
210 215 220

Arg Tyr Thr Val

225

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<212> DNA
<213> Capsicum chinense

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acgacgtcgt atttgagcaa agaaaatagca gcaaaggcatc cattagagca ttcatggact 180
ttctggtttataataacagt ggcgaaaatcg agacaagctg cttggggtag ctcgcttcgc 240
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ccaagcaagt tagttgttagt agcagactta cattgtttca agcataaaat tgagccaaag 360
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tctgataccatcgcttata tacgctgctt gcaatgattt gacatcaattt cgatcatgaa 480
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accaagaatg ctgcaaatgaa aacggctcag gtttagcattt gtaagcaatg gaaggcattt 600
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aatgcaaaaga atcgttacac cgtatag 687

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<211> 228
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<213> Capsicum chinense

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Lys Val Lys Leu Asn Ala Asn Glu Ala Asp Asp Glu Val Glu Glu Gly
20 25 30

Glu Ile Val Glu Glu Thr Asp Asp Thr Thr Ser Tyr Leu Ser Lys Glu
35 40 45

Ile Ala Ala Lys His Pro Leu Glu His Ser Trp Thr Phe Trp Phe Asp
50 55 60

Asn Thr Val Ala Lys Ser Arg Gln Ala Ala Trp Gly Ser Ser Leu Arg
65 70 75 80

Asn Val Tyr Thr Phe Ser Thr Val Glu Asp Phe Trp Gly Ala Tyr Asn
85 90 95

Asn Ile His His Pro Ser Lys Leu Val Val Arg Ala Asp Leu His Cys
100 105 110

Phe Lys His Lys Ile Glu Pro Lys Trp Glu Asp Pro Val Cys Ala Asn
115 120 125

Gly Gly Thr Trp Lys Met Ser Phe Ser Lys Gly Lys Ser Asp Thr Ser
130 135 140

Trp Leu Tyr Thr Leu Leu Ala Met Ile Gly His Gln Phe Asp His Glu
145 150 155 160

Asp Glu Ile Cys Gly Ala Val Val Ser Val Arg Gly Lys Gly Glu Lys
165 170 175

Ile Ser Leu Trp Thr Lys Asn Ala Ala Asn Glu Thr Ala Gln Val Ser
180 185 190

Ile Gly Lys Gln Trp Lys Gln Phe Leu Asp Tyr Ser Asp Ser Val Gly
195 200 205

Phe Ile Phe His Asp Asp Ala Lys Arg Leu Asp Arg Asn Ala Lys Asn
210 215 220

Arg Tyr Thr Val
225

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<212> DNA
<213> Capsicum annuum

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acgacgtcgt atttgagcaa agaaatagca acaaaggcatc cattagagca ttcatggact 180
ttctggtttataatccaga ggcgaaatcg aaacaagctg cttggggtag ctcgcgtcgc 240
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tggaaatgc ctgtatgtgc caatggaggg acatggaaaaa tgagttttc aaagggtaaa 420
tctgataccatgttgcata tacgctgtttt gcaatgattt gacatcaattt cgatcatgaa 480
gatgaaattt gtggagcagt agtttagtgc agaggtttagg gagaaaaat atctttgtgg 540
accaagaatgc ctgcaaatgc aacggctcag gttttttttt gtaagcaatgc gaaggcgtttt 600
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aatgcaaaaga atcgtttacac cgtatag 687

<210> 6
<211> 228

<212> PRT

<213> Capsicum annuum

<400> 6

Met Ala Thr Ala Glu Met Glu Lys Thr Thr Thr Phe Asp Glu Ala Glu
1 5 10 15

Lys Val Lys Leu Asn Ala Asn Glu Ala Asp Asp Glu Val Glu Glu Gly
20 25 30

Glu Ile Val Glu Glu Thr Asp Asp Thr Thr Ser Tyr Leu Ser Lys Glu
35 40 45

Ile Ala Thr Lys His Pro Leu Glu His Ser Trp Thr Phe Trp Phe Asp
50 55 60

Asn Pro Glu Ala Lys Ser Lys Gln Ala Ala Trp Gly Ser Ser Arg Arg
65 70 75 80

Asn Val Tyr Thr Phe Ser Thr Val Glu Asp Phe Trp Gly Ala Tyr Asn
85 90 95

Asn Ile His His Pro Ser Lys Leu Val Val Gly Ala Asp Leu His Cys
100 105 110

Phe Lys His Lys Ile Glu Pro Lys Trp Glu Asp Pro Val Cys Ala Asn
115 120 125

Gly Gly Thr Trp Lys Met Ser Phe Ser Lys Gly Lys Ser Asp Thr Ser
130 135 140

Trp Leu Tyr Thr Leu Leu Ala Met Ile Gly His Gln Phe Asp His Glu
145 150 155 160

Asp Glu Ile Cys Gly Ala Val Val Ser Val Arg Gly Lys Gly Glu Lys
165 170 175

Ile Ser Leu Trp Thr Lys Asn Ala Ala Asn Glu Thr Ala Gln Val Ser
180 185 190

Ile Gly Lys Gln Trp Lys Gln Phe Leu Asp Tyr Ser Asp Ser Val Gly
195 200 205

Phe Ile Phe His Asp Asp Ala Lys Arg Leu Asp Arg Asn Ala Lys Asn
210 215 220

Arg Tyr Thr Val

225

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ttctggtttataatccaga ggcgaaaatcg aaacaagctg cttggggtag ctcgcgtcgc 240
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accaagaatg ctgaaaatga aacggctcag gtttagcattt gtaagcaatg gaaggcattt 600
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aatgccaaga atcgttacac cgtatag 687

<210> 8
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<212> PRT
<213> Capsicum annuum

<400> 8
Met Ala Thr Ala Glu Met Glu Lys Thr Thr Thr Phe Asp Glu Ala Glu
1 5 10 15

Lys Val Lys Leu Asn Ala Asn Glu Ala Asp Asp Glu Val Glu Glu Gly
20 25 30

Glu Ile Val Glu Glu Thr Asp Asp Thr Thr Ser Tyr Leu Ser Lys Glu
35 40 45

Ile Ala Thr Lys His Pro Leu Glu His Ser Trp Thr Phe Trp Phe Asp
50 55 60

Asn Pro Glu Ala Lys Ser Lys Gln Ala Ala Trp Gly Ser Ser Arg Arg
65 70 75 80

Asn Val Tyr Thr Phe Ser Thr Val Glu Asp Phe Trp Gly Ala Tyr Asn
85 90 95

Asn Ile His His Pro Ser Lys Leu Val Val Gly Ala Asn Leu His Cys
100 105 110

Phe Lys His Lys Ile Glu Pro Lys Trp Glu Asp Pro Val Cys Ala Asn
115 120 125

Gly Gly Thr Trp Lys Met Ser Phe Ser Lys Gly Lys Ser Asp Thr Ser
130 135 140

Trp Leu Tyr Thr Leu Leu Ala Met Ile Gly His Gln Phe Asp His Glu
145 150 155 160

Asp Glu Ile Cys Gly Ala Val Val Ser Val Arg Gly Lys Gly Glu Lys
165 170 175

Ile Ser Leu Trp Thr Lys Asn Ala Ala Asn Glu Thr Ala Gln Val Ser
180 185 190

Ile Gly Lys Gln Trp Lys Gln Phe Leu Asp Tyr Ser Asp Ser Val Gly
195 200 205

Phe Ile Phe His Asp Asp Ala Lys Arg Leu Asp Arg Asn Ala Lys Asn
210 215 220

Arg Tyr Thr Val
225

<210> 9
<211> 19
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<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 9
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<210> 10
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 10
tatacggtgt aacgattctt ggca 24

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<211> 17
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

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<210> 12
<211> 17
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 12
gctccacata tttcatc                                17

<210> 13
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 13
ttacacgcgc cgatacacatt g                            21

<210> 14
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 14
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<210> 15
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 15
aacaatggcc accgaagc 18

<210> 16
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 16
attcacacaca gatatcgac tct 23

<210> 17
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 17
atcgatggca acagctgaaa tgg 23

<210> 18
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 18
ctatacggtc taacgattct 20
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<210> 19
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 19
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<210> 20
<211> 21
<212> DNA
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<220>
<223> Description of Artificial Sequence: Primer

<400> 20
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<210> 21
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 21
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<210> 22
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
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<210> 23
<211> 27
<212> DNA
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<220>
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<400> 23
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<210> 24
<211> 25
<212> DNA
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<220>
<223> Description of Artificial Sequence: Primer

<400> 24
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<210> 25
<211> 30
<212> DNA
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<210> 26
<211> 24
<212> DNA
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<220>
<223> Description of Artificial Sequence: Primer

<400> 26
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<210> 27
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 27
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<210> 28
<211> 24
<212> DNA
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<220>
<223> Description of Artificial Sequence: Primer

<400> 28
cactctagta atattatttt ctgt 24

<210> 29
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 29
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<210> 30
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 30
ggtaagcaat ggaaggcgtt tctg 24

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<210> 31
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 31
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<210> 32
<211> 28
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 32
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<210> 33
<211> 29
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 33
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<210> 34
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

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<210> 35
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 35
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<210> 36
<211> 28
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 36
ccgaattcat gggagagaag aggaaatg 28

<210> 37
<211> 29
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 37
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<210> 38
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 38
ccatatggca acagctga 18

<210> 39
<211> 24
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer

<400> 39

ccctcgagct atacggtgta acga

24